Herringbone 360

By

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How I made a Herringbone 360
By: Darrin McArthur Version 1.0

I have read a few different tutorials and forum threads for segmenting. The 360 Herringbone is a project that really fascinated me. I could only find a couple of good descriptions of how to do it. The best I found was a thread on the IAP forum. However it had couple of problems. After some serious head scratching, I finally made my first 360. It was only when a couple of people asked how I did it, that I realized I didn't take any pictures of the process.


My 1st Herringbone

That brings us to this tutorial. I chose 3 colours for the tutorial blank, to make it easier to see how the parts go together.

The first thing I did was square up 3 pieces of wood. One each of Osage Orange, Purpleheart, Padauk. The blanks were ¾" square by 6" long. I then cut them up on my bandsaw to 1/8" slices. I ended up with 30 slices of each. This is enough to make 15 levels of Herringbone (large enough for a Sierra Click).

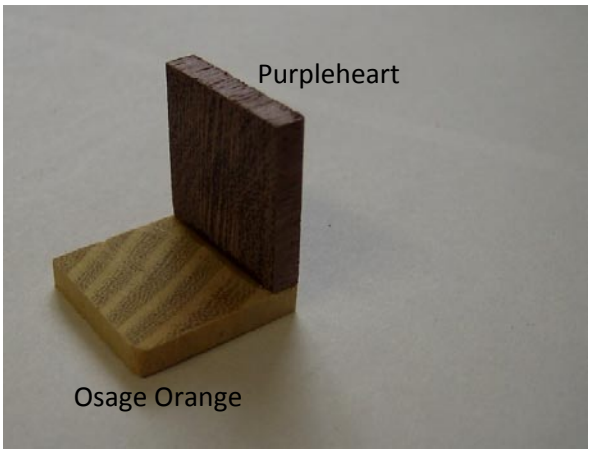
I then sanded each piece to ensure they were smooth, square and equal thickness. I did this using my Worksharp 3000. It is designed to be a slow speed sharpening tool, but I have found it invaluable for working with small pieces.

Glue Up

Once all the pieces are cleaned up, it is time for the head scratching. Each level of the Herringbone is made up 2 sets of 3 pieces of wood, making a total of 6 individual pieces of wood per level. Hopefully my use of 3 different colours of wood will make understanding the glue up a little easier. All my gluing is done using “Thick CA”.

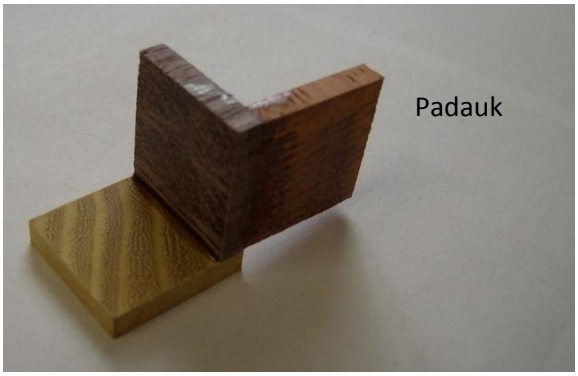
3 piece set stage one:

Glue 2 pieces together to form an “L” shape. Note that the Purpleheart is on top of the Osage Orange.

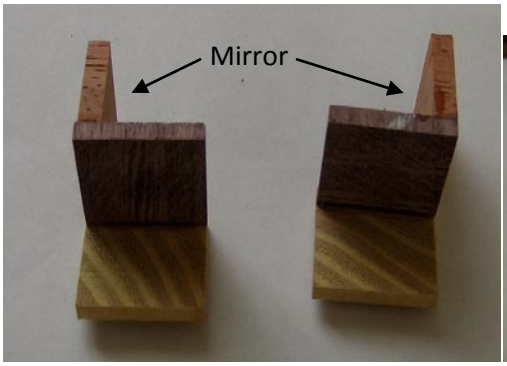


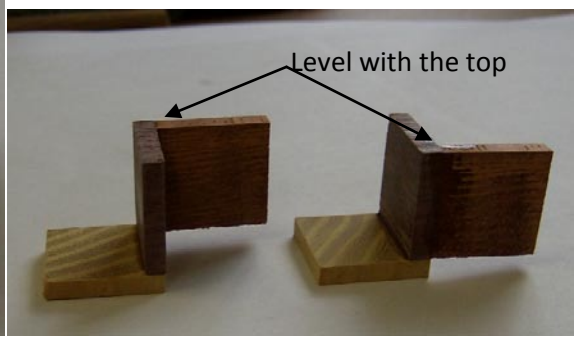
3piece set stage two:

In this stage we will attach the third piece of wood to the back of the “L” shape. As I said before, each level is made up of 2 of these 3 piece segments.

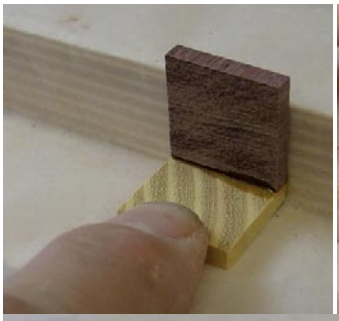


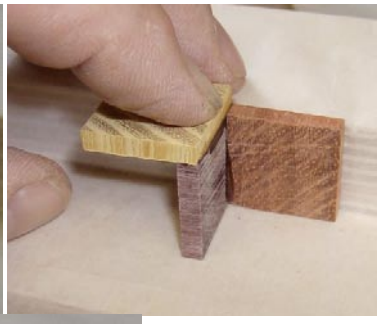
However they are mirror images of each other. Also note that the Padauk piece is attached level with the top of the Purpleheart.





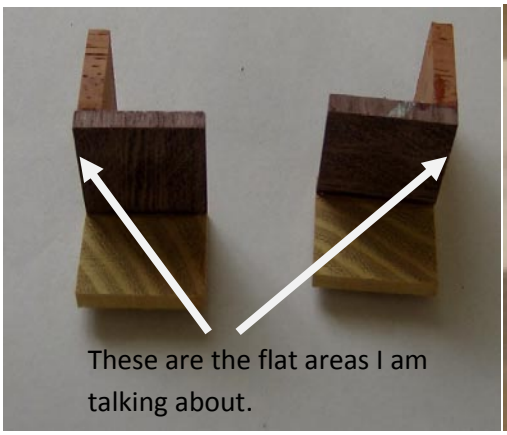
Here are some more photos of the 3 piece glue up. I use a jig which is just 2 pieces of ¾" plywood attached together to form a square glue up support. I put a piece of wax paper between the jig and the pieces. CA does not stick very well to wax paper.

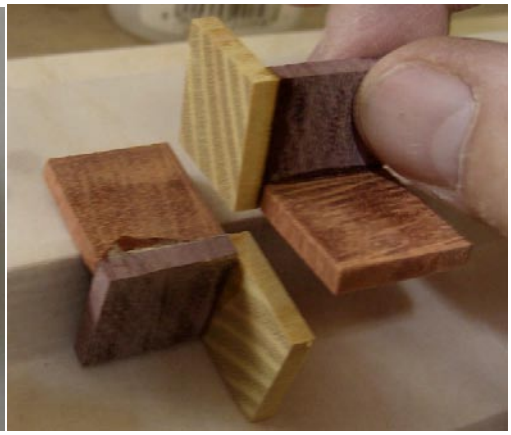




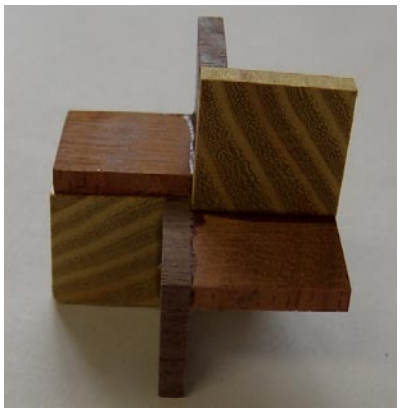
6 piece Glueup:

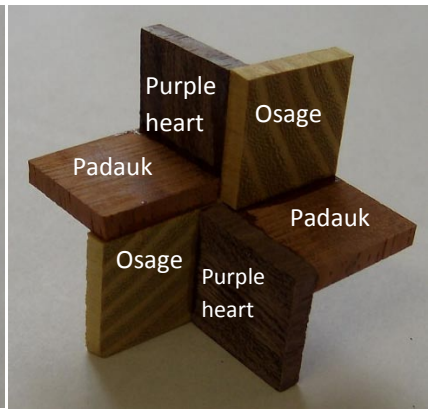
Now we have to attach the two 3 piece segments together to form a level. You will notice, that the 3 piece segment has one edge that is flat across all 3 pieces. To form the Herringbone level we attach the flat portions of each mirror segment together. Notice that you will have to rotate the pieces to achieve the correct orientation.





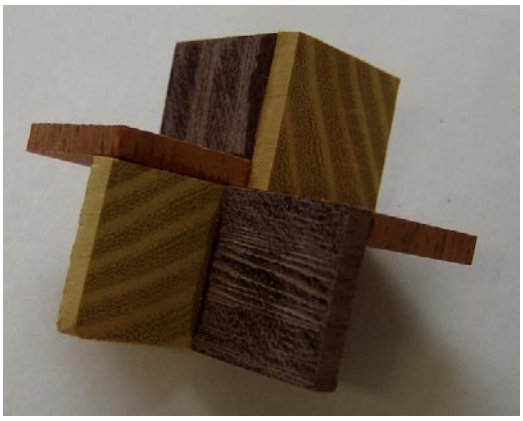
Here is a couple of views of the glued up sections.

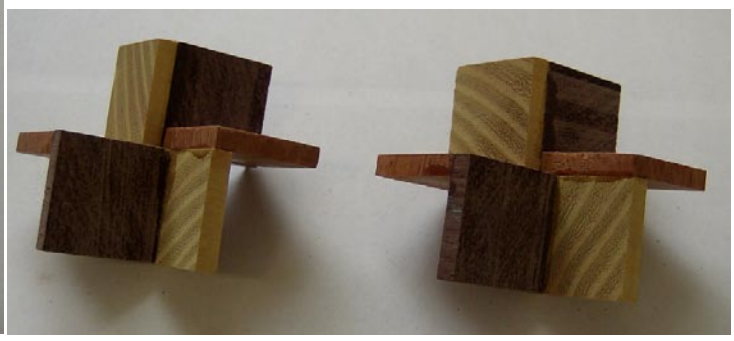


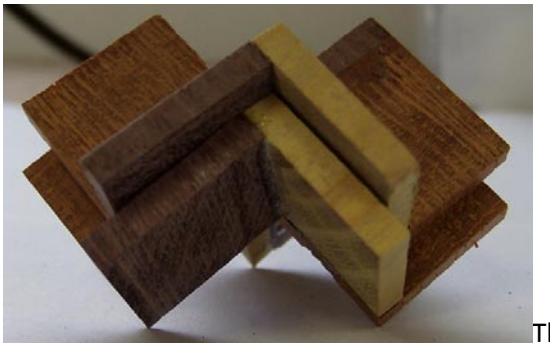


When the pieces are done correctly, the colours will be in order all the way around.

Here are the pieces oriented ready for stacking.

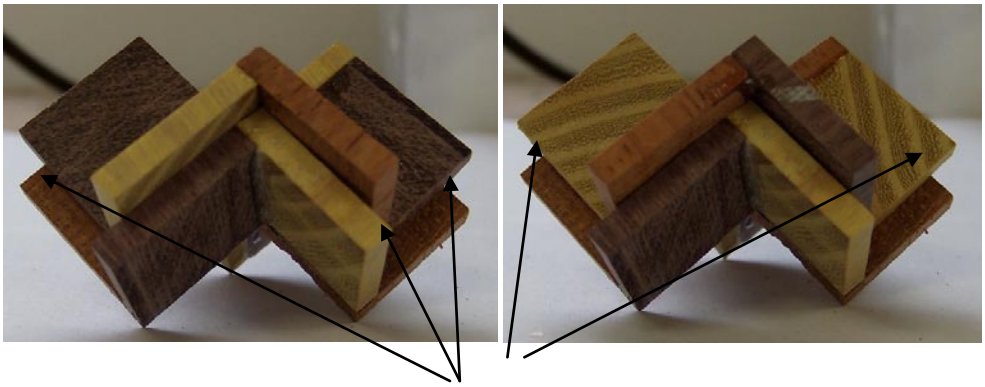






This shows the levels stacked

Here are 2 pictures showing different ways the colours can be oriented. It is just a matter of rotating the level.



Wings that will be trimmed off later.

Now is where I made a minor mistake. I forgot to take a picture of the completed stack. Once you have the stack completed, soak the entire blank with “Thin CA”. This will help to stabilize the blank and fill in gaps that were left because the pieces weren’t quite square.

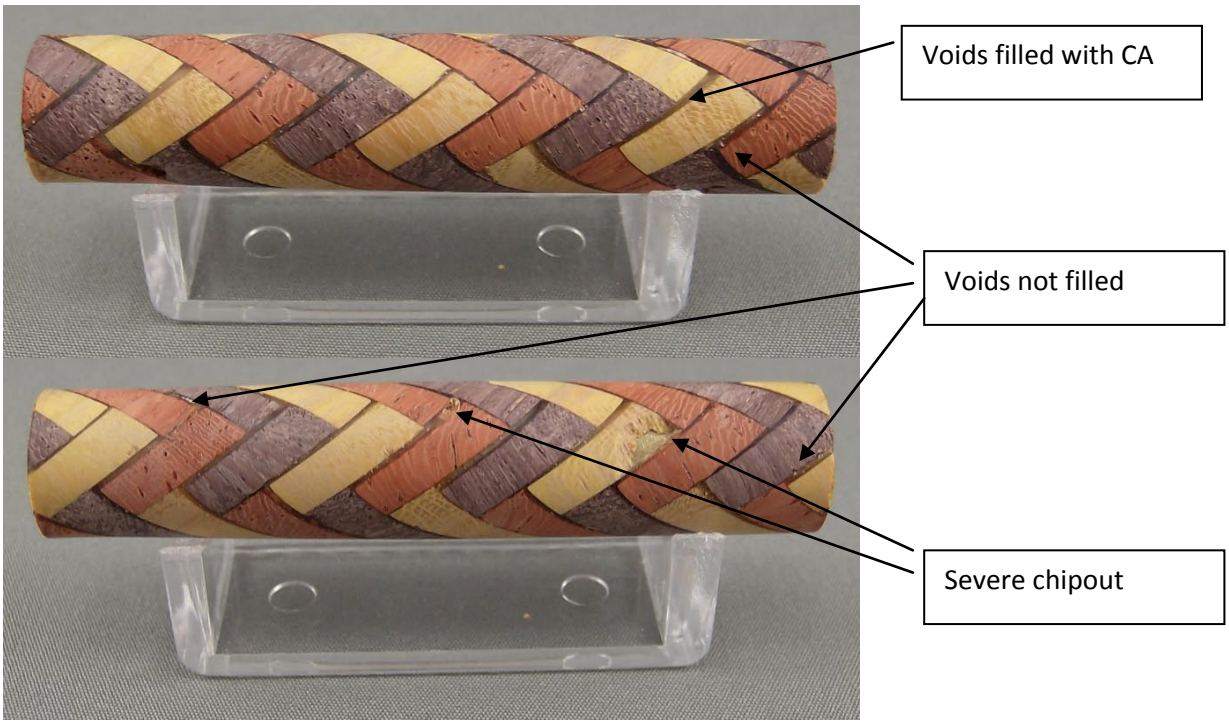
This is a picture with the wings cut off the blank and the ends squared up. This makes it easier to turn between centers. To turn between centers, drill a small 1/8”dia hole 1/8” deep in the center of each end. I then used my spur center (headstock) and my live center (tailstock). Turning the blank will make it easier to drill the holes exactly in the middle. This is very important because if the hole is off the pattern will be off.

Wings trimmed off 

Turned between centers 

Well here is the final turned piece. It did not come out good, However I am including the picture in the tutorial because I believe every failure is a step towards success.

I If you look carefully, you will see why it is very critical to have all the pieces square and uniform. You will notice gaps that have been filled with CA (not pretty, but acceptable), and voids where CA did not fill. This is unacceptable because a: it doesn't look good and b: small unglued pieces can come out leaving large holes and a nice view of the brass tube. A very sharp tool is another important criteria, that may have saved this blank from the oops pile.



I hope tutorial helps with your attempt at a Herringbone 360. It is very satisfying when watch the smooth pattern appear from the irregular shape of the glued up pieces. Patience and perseverance is the key to this project.

Good Luck